Introduction
The arid region makes up nearly 60% of the Indian territory and represents very diversified natural conditions. Desert ecosystems are one of the vulnerable ecosystems and, sites of overexploitation and resource depletion, which has an indirect impact on human habitation and lifestyles.

Millions of people in the third world are encouraging revival of the practice of the herbal medicines because they have believed in them for centuries and regard them as “their” system of medicine. It is therefore important to bring the use of these remedies into the existing framework of rational scientific use of medicine in tropical infectious diseases, the most prevalent of which are malaria and amoebiasis.

Ethnobotanical studies have resulted in the discovery of just two important antimalarial plants like the discovery of quinine from Cinchona bark in South America and artemisinin from Artemisia in China. Three decades ago CQ sensitive and CQ resistant strains of Plasmodium led to finding newer methodologies and arguments for discovering antimalarial compounds from plant products. The search for newer antimalarial plants has led to a profusion of claims of antimalarial activity by plants in various regions of the world and to document the traditional use of medicinal plants to prevent that knowledge from being lost from the oral tradition. A historical review and extensive compilation of such plants showing antiplasmodial activity has been compiled by us as a part of this study.

Traditional uses of locally available crude plant formulations have had a rich folklore and added to this is the belief that these can now be used in combination with chloroquine as a routine. The development of in vitro modulators of chloroquine action have been studied extensively and the search of weaker antimalarials from other plants which can potentiate the action of chloroquine, have the advantage of reducing its ultimate dosage and side effects even in resistant strains. These may well help in reducing the dosage of chloroquine to prevent toxic effects in humans and enlighten the advantages of polychemotherapy including the use of crude plant/herbal products.

More recent studies suggest the presence of compounds that bind to genetic material. Crude extracts from plants have been shown to interact with DNA to detail the bioactivity and characterise bioactive target molecules. DNA-methyl green assay is a simple method which can be used to screen crude plant extracts and for further characterisation of biological and structural activities from their isolated compounds.
AIMS AND OBJECTIVES

1. To identify a few medicinal plants indigenous to Rajasthan based on folklore and traditional medicinal use in cure of fever and stomach ailments.

For this study ethnobotanical information was generated by visiting desert farms of plants with economic value like Mangaliawas farm Ajmer, Desert Medicine Research Centre (DMRC) Bikaner and Central Arid Zone Research Institute (CAZRI) Jodhpur and the plants with medicinal usage were looked for. Calotropis procera and Commiphora wightii indigenous to Rajasthan were identified for their antiprotozoal activities based on local people's belief and their system of medicine, along with collection of the former in the field itself.

2. Scientific testing of crude extracts against in vitro isolates of P. falciparum MRC P.f. 20 and MRC P.f. 76 and E. histolytica HM-1: IMSS

Preliminary phytochemical screening was done in both the plants separately. *In vitro* tests were done for screening the crude extracts of both the plants in chloroquine sensitive and chloroquine resistant isolates of *P. falciparum* using microscopic method. The ethanol extracts and some fractions were further tested with *E. histolytica* HM-1: IMSS and finally by purified compounds obtained from secondary sources, of both the plants. These isolates were also tested with several standard antimalarial drugs and antiamoebic metronidazole for comparison.

3. To study the synergistic effect of the better extracts, fractions and compounds for their chloroquine potentiating action.

Activity Enhancement Index (AEI) was calculated by dividing the IC₉₀ for chloroquine alone by the IC₉₀ for chloroquine plus extracts or fractions. "Potentiation" of chloroquine was defined as AEI equal to or greater than 1.5 The IC₅₀ values were converted to fractional isobolar units.

4. To study the cytotoxicity using percentage hemolytic activity in human fresh erythrocytes.

Human erythrocytes were exposed in a dose dependent manner to various ethanolic plant extracts , and fractions as obtained from plant parts of *C. procera* and the gum-oleo-resin of *C. wightii* which had been screened for *in vitro* antimalarial activity. Their cytotoxicity is represented by *in vitro* rate of hemolysis.
5. Screening with DNA binding assay for bioactivity

The extracts were finally tested using DNA-methyl green assay so as to know the mechanism of action involving DNA, if any. Methyl green reversibly binds polymerised DNA and the ability of known and unknown DNA active compounds to disrupt the DNA/methyl green complex can be conveniently and easily assessed by spectral changes resulting by its intercalation.